Claims

[c1] What is claimed is:

1.A driving method of a liquid crystal display (LCD) monitor, the LCD monitor comprising:

an LCD panel for displaying a plurality of pixels arranged in a matrix format;

a positive buffer circuit for driving the pixels with a positive voltage;

a negative buffer circuit for driving the pixels with a negative voltage;

a detector for receiving a horizontal synchronization signal and a polarity signal, and for comparing states of the polarity signal at two successive triggers of the horizontal synchronization signal; and

a controller connected to the detector, the positive buffer circuit, and the negative buffer circuit for controlling operation of the npositive buffer circuit and the negative buffer circuit according to an output of the detector;

the driving method comprising:

using the controller to control either the positive buffer circuit or the negative buffer circuit for driving two adjacent pixels, which are located in the same column but different rows on the LCD panel corresponding to the two successive triggers of the horizontal synchronization signal, with voltages of the same polarity when the detector detects that states of the polarity signal at two successive triggers of the horizontal synchronization signal are the same so that the positive buffer circuit continuously drives the pixels with the positive voltage and the negative buffer circuit continuously drives the pixels with the negative voltage; and

using the controller to control the positive buffer circuit and the negative buffer circuit for driving two adjacent pixels, which are located in the same column but different rows on the LCD panel corresponding to two successive triggers of the horizontal synchronization signal, with voltages of opposite polarities when the detector detects that two states of the polarity signal at two successive triggers of the horizontal synchronization signal differ.

[c2]

2.The driving method of claim 1 wherein the pixel to be driven with a positive voltage is precharged to a predetermined positive level before being driven, and the pixel to be driven with a negative voltage is precharged to a predetermined

negative level before being driven.

[c3] 3.The driving method of claim 2 wherein the positive buffer circuit comprises a first precharge circuit for providing the predetermined positive level, and the negative buffer circuit comprises a second precharge circuit for providing the predetermined negative level.

[c4] 4.The driving method of claim 3 wherein the first precharge circuit and the second precharge circuit are source followers.

[c5] 5.The driving method of claim 1 wherein the detector comprises two latch circuits for holding the corresponding states of the polarity signal at two successive triggers of the horizontal synchronization signal, and a logic circuit for comparing two states of the polarity signal at two successive triggers of the horizontal synchronization signal.

[c6] 6.The driving method of claim 1 wherein each of the positive buffer circuit and the negative buffer comprises a class-A operational amplifier buffer for driving pixels.

[c7] 7.A liquid crystal display (LCD) monitor comprising:
an LCD panel for displaying a plurality of pixels arranged in a matrix format;
a positive buffer circuit for driving the pixels with a positive voltage;
a negative buffer circuit for driving the pixels with a negative voltage;
a detector for receiving a horizontal synchronization signal and a polarity signal, and for comparing states of the polarity signal at two successive triggers of the horizontal synchronization signal; and
a controller connected to the detector, the positive buffer circuit, and the negative buffer circuit for controlling operation of the positive buffer circuit and the negative buffer circuit according to an output of the detector;
wherein the controller controls either the positive buffer circuit or the negative buffer circuit for driving two adjacent pixels, which are located in the same column but different rows on the LCD panel corresponding to the two successive triggers of the horizontal synchronization signal, with voltages of the same polarity when the detector detects that states of the polarity signal at two

successive triggers of the horizontal synchronization signal are the same so that the positive buffer circuit continuously drives the pixels with the positive voltage and the negative buffer circuit continuously drives the pixels with the negative voltage, and the controller controls the positive buffer circuit and the negative buffer circuit for driving two adjacent pixels, which are located in the same column but different rows on the LCD panel corresponding to two successive triggers of the horizontal synchronization signal, with voltages of opposite polarities when the detector detects that two states of the polarity signal at two successive triggers of the horizontal synchronization signal differ.

[c8] 8.The liquid crystal display monitor of claim 7 wherein the pixel to be driven with a positive voltage is precharged to a predetermined positive level before being driven, and the pixel to be driven with a negative voltage is precharged to a predetermined negative level before being driven.

[c9] 9.The liquid crystal display monitor of claim 8 wherein the positive buffer circuit comprises a first precharge circuit for providing the predetermined positive level, and the negative buffer circuit comprises a second precharge circuit for providing the predetermined negative level.

[c10] 10.The liquid crystal display monitor of claim 9 wherein the first precharge circuit and the second precharge circuit are source followers.

[c11] 11.The liquid crystal display monitor of claim 7 wherein the detector comprises two latch circuits for holding the corresponding states of the polarity signal at two successive triggers of the horizontal synchronization signal, and a logic circuit for comparing two states of the polarity signal at two successive triggers of the horizontal synchronization signal.

[c12] 12.The liquid crystal display monitor of claim 7 wherein each of the positive buffer circuit and the negative buffer circuit comprises a class-A operational amplifier buffer for driving the pixels.

[c13] 13.A driving circuit of a liquid crystal display (LCD) monitor, the LCD monitor comprising an LCD panel for displaying a plurality of pixels arranged in a matrix format, the driving circuit comprising:

a positive buffer circuit for driving the pixels with a positive voltage;
a negative buffer circuit for driving the pixels with a negative voltage;
a detector for receiving a horizontal synchronization signal and a polarity signal, the detector comprising:
two latch circuits for holding the corresponding states of the polarity signal at two successive triggers of the horizontal synchronization signal; and
a logic circuit for comparing two states of the polarity signal at two successive triggers of the horizontal synchronization signal; and
a controller connected to the detector, the positive buffer circuit, and the negative output buffer for controlling operation of the positive buffer circuit and the negative buffer circuit according to an output of the detector;
wherein the controller controls either the positive buffer circuit or the negative buffer circuit for driving two adjacent pixels, which are located in the same column but different rows on the LCD panel corresponding to the two successive triggers of the horizontal synchronization signal, with voltages of the same polarity when the detector detects that states of the polarity signal at two successive triggers of the horizontal synchronization signal are the same so that the positive buffer circuit continuously drives the pixels with the positive voltage and the negative buffer circuit continuously drives the pixels with the negative voltage, and the controller controls the positive buffer circuit and the negative buffer circuit for driving two adjacent pixels, which are located in the same column but different rows on the LCD panel corresponding to two successive triggers of the horizontal synchronization signal, with voltages of opposite polarities when the detector detects that two states of the polarity signal at two successive triggers of the horizontal synchronization signal differ.

[c14] 14.The driving circuit of claim 13 wherein the pixel to be driven with a positive voltage is precharged to a predetermined positive level before being driven, and the pixel to be driven with a negative voltage is precharged to a predetermined negative level before being driven.

[c15] 15.The driving circuit of claim 14 wherein the positive buffer circuit comprises a first precharge circuit for providing the predetermined positive level, and the negative buffer circuit comprises a second precharge circuit for providing the

predetermined negative level.

[c16] 16.The driving circuit of claim 15 wherein the first precharge circuit and the second precharge circuit are source followers.

[c17] 17.The driving circuit of claim 13 wherein each of the positive buffer circuit and the negative buffer circuit comprises a class-A operational amplifier buffer for driving the pixels.

[c18] 18.A driving method for a flat panel display having a plurality of pixels arranged in a matrix, first and second display data is to be display on first and second pixels of the flat panel display through a buffer circuit in order, the buffer circuit comprising a precharge circuit and a class-A output buffer; said method comprising:

driving the first pixel according to the first display data;

comparing the polarity statuses corresponding to the first and second display data;

driving the second pixel by the precharge circuit and the class-A output buffer if the polarity statuses are the same, in accordance with the second display data; and

driving the second pixel by the class-A output buffer if the polarity statuses are different, in accordance with the second display data.

[c19] 19.A driving method for a flat panel display having a plurality of pixels arranged in a matrix, first and second pixels of the flat panel display are sequentially driven by a buffer circuit according to first and second display data, the buffer circuit comprising first and second class-A output buffers; said method comprising:

driving the first pixel to a voltage level corresponding to the first display data by means of the first class-A output buffer;

comparing the polarity statuses corresponding to the first and second display data;

precharging the second pixel to a predetermined voltage level and then driving the second pixel to a voltage level corresponding to the second display data by means of the first class-A output buffer if the polarity statuses are the same;

and

driving the second pixel to a voltage level corresponding to the second display data by means of the second class-A output buffer if the polarity statuses are different.

[c20] 20. The driving method of claim 19, further comprising precharging the second pixel to a second predetermined voltage level before driving the second pixel to a voltage level corresponding to the second display data, if the polarity statuses are different.